

AMENDMENTS TO THE CLAIMS

Claims 1- 43 (Canceled)

Claim 44. (Previously presented) A method of selecting inhibitors of an autoinducer molecule of *Pseudomonas aeruginosa* comprising:

contacting the autoinducer molecule with a suspected inhibitor;

measuring the ability of the treated autoinducer molecule to stimulate the activity of LasR;

determining whether the suspected inhibitor inhibits the ability of the autoinducer molecule to stimulate the activity of LasR; and

selecting the suspected inhibitors that inhibit the autoinducer molecule.

Claim 45. (Previously presented) A method of selecting synergists of an autoinducer molecule of *Pseudomonas aeruginosa* comprising:

contacting the autoinducer molecule with a suspected synergist;

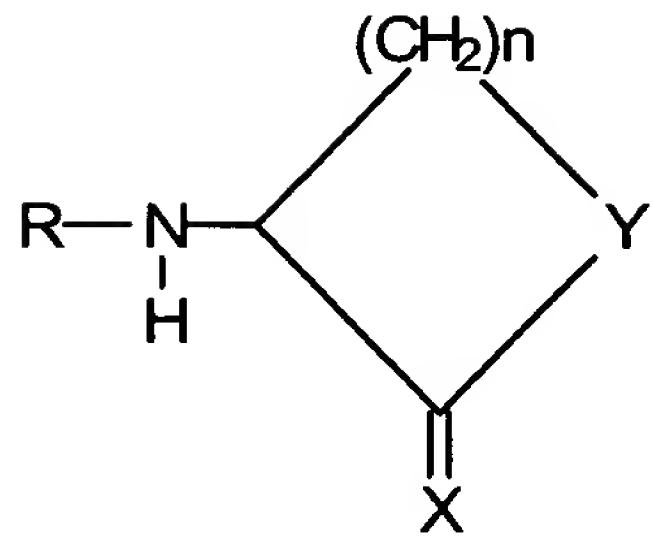
measuring the ability of the treated autoinducer molecule to stimulate the activity of LasR;

determining whether the suspected synergist enhances the ability of the autoinducer molecule to stimulate the activity of LasR; and

selecting the suspected synergists that enhance the activity of the autoinducer molecule.

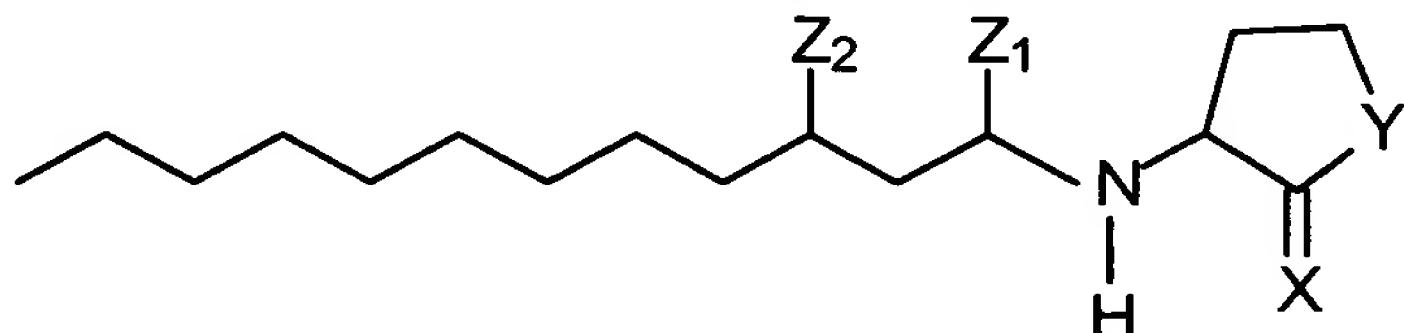
Claims 46-53. (Canceled)

Claim 54. (Previously presented) The method of claim 44, wherein the autoinducer molecule comprises a compound of the formula I:



wherein n is 2 or 3; Y is O, S, or NH; X is O, S, or NH; and R is a fatty hydrocarbon or acyl moiety that may be substituted or a moiety having at least seven members containing a ring structure that may be substituted, wherein the molecule is able to stimulate the activity of the selected gene of *Pseudomonas aeruginosa*.

- Claim 55. (Previously presented) The method of claim 54 wherein R is a C₇ - C₁₄ acyl moiety.
- Claim 56. (Previously presented) The method of claim 55 wherein R is a C₁₀ or higher acyl moiety.
- Claim 57. (Previously presented) The method of claim 56 wherein R is a C₁₂ acyl moiety.
- Claim 58. (Previously presented) The method of claim 57, wherein the autoinducer molecule comprises a molecule of the formula II:



wherein X is O, S, or NH; Y is O; and Z₁ and Z₂ are independently selected from the group consisting of hydrogen, =O, =S, and =NH.

- Claim 59. (Previously presented) The method of claim 44, wherein the autoinducer molecule is N-(3-oxododecanoyl)homoserine lactone.

- Claim 60. (Previously presented) The method of claim 54 wherein R contains a heterocyclic ring structure.
- Claim 61. (Previously presented) The method of claim 60 wherein the heterocyclic ring structure has five to seven ring members.
- Claim 62. (Previously presented) The method of claim 61 wherein the heterocyclic ring structure contains oxygen.
- Claim 63. (Previously presented) The method of claim 54 wherein R contains a carbocyclic ring structure.
- Claim 64. (Previously presented) The method of claim 63 wherein the carbocyclic ring structure is a fused ring system.
- Claim 65. (Previously presented) The method of claim 54 wherein the molecule is purified from its native source.
- Claim 66. (Previously presented) The method of claim 65 wherein the native source is the culture media of *Pseudomonas aeruginosa*.
- Claim 67. (Previously presented) The method of claim 54 wherein the molecule is synthesized by chemical means.
- Claim 68. (Previously presented) The method of claim 54 wherein the molecule is an optically active isomer.
- Claim 69. (Previously presented) The method of claim 68 wherein the isomer is the L-isomer.

Claim 70. (Previously presented) The method of claim 68 wherein the isomer is the D-isomer.

Claim 71-73. (Canceled)

Claim 74. (Previously presented) The method of claim 44, wherein the step of contacting the autoinducer molecule with the suspected inhibitor further comprises combining the autoinducer molecule and the suspected inhibitor with *E. coli* MG4.

Claim 75. (Previously presented) The method of claim 74, wherein the step of measuring the ability of the treated autoinducer molecule to stimulate the activity of LasR comprises measuring the amount of β -galactosidase produced as a result of combining the autoinducer molecule and the suspected inhibitor with *E. coli* MG4.

Claim 76. (Previously presented) The method of claim 75, wherein the step of determining whether the suspected inhibitor inhibits the ability of the autoinducer molecule to stimulate the activity of LasR comprises comparing the amount of β -galactosidase produced to a standard to determine if the suspected inhibitor represses the ability of the autoinducer to stimulate the production of β -galactosidase.

Claim 77-79. (Canceled)